

### BRIDGE BUILDING IN HOLLAND. INSTITUTION OF CIVIL ENGINEERS.

At a meeting on the 16th inst., the paper read was "A description of the method adopted in preparing the foundation, and in building the bridge over the Poldersaart, on the line of the Amsterdam and Rotterdam Railway," by the Chevalier Conrad; compiled by Mr. C. Manby, secretary, from documents furnished by Mynheer Wenckeback.

This bridge derived its importance from the peculiarly treacherous nature of the ground upon which it was constructed; for although in Holland bad foundations are the rule rather than the exception, the difficulties were in this case so peculiarly great, as to demand particular notice. The Poldersaart is a canal encompassing and conveying away the water from the Polders, or spots of drained land, in the commune of Keibel. The railway, traversing it at a considerable angle, rendered a skew-bridge of three openings necessary; the centre one 13 feet span, for the navigation, and the two side arches, 21 feet span each, for the drainage waters. The proceedings were commenced in the usual manner, with the intention of having separate foundations for each pier. This was by sluicing in large quantities of sand to form dams, within which, when pumped dry, the foundations would have been excavated. After a length of about 70 feet of sand-dam, 10 feet deep, had been filled in, without exhibiting any signs of sinking, a heavy thunder-storm occurred, during which the whole mass of sand-dam was suddenly engulfed to a depth of 29 feet, whilst there arose simultaneously, at a short distance down the canal to above the water level, a mass of bog earth of an area of 4,129 square feet. The mass increased at subsequent periods of the proceedings to the area of 5,325 square feet. It was evident that an extensive subterraneous shifting of the bog-earth had occurred, and there was reason to fear for the safety of the adjacent dykes and other works. Piling and fascine works were tried without success. Piles of 7½ feet in length, when driven and tied together by waling pieces, swerved badly from their position, and became useless. Fascines equally failed in producing stability. The engineer therefore determined after directing the canal water into a side cut, to surround the site of the intended foundation with mounds of sand, allowing for their subsidence into the gulph below, and their squeezing up the bog-earth around and within the spot. This was at length completed and the foundation pit was enabled to be pumped dry. It then became necessary to remove all the bog-earth from within the space for the foundations, which was accomplished by digging out spaces of a yard square, and filling them in with sand as they proceeded, until by commencing at the exterior and working inwards to the centre, all the bog-earth was removed, and a bed of sand had been formed in its place. The piles for the ordinary foundation used in Holland were then driven through the made ground, and the structure was completed with perfect success. The sand-dams, and the masses of upraised bog-earth outside, being subsequently dredged up in the ordinary manner to restore the canal to its original bed. In this description, the circumstances most deserving attention, appeared to be the sudden rising of the bog-earth during a thunder-storm. This is, however, of frequent occurrence in Holland; and it would appear as if the adhesion of the masses of bog earth to the bottom was so slight, that the vibration communicated to the water by the thunder sufficed to destroy the equilibrium, and the bog turf, which from its slight specific gravity will float even when wet, instantly rose to the surface. When, therefore, as in this case, a heavy mass of sand was placed in the vicinity of such bog earth, the bottom was unable to resist the pressure, and the least vibration caused it to break through the crust, being engulfed amidst the lighter material, which it forced up in the direction of the least resistance. The paper treated at some length on all the precautions necessary in this and similar constructions in Holland, where such bad foundations are of very constant occurrence.

In the discussion which ensued, descriptions were given of the simpler methods employed in similar situations in England, where bridges of greater weight and span were constructed

upon foundations of nearly as treacherous natures. For instance, on one of the branches of the Norfolk Railway, for a bridge, of which the swinging portion weighed 100 tons, a series of sixteen piles, driven 50 feet deep into the silt, in 12 feet water, supported a cast-iron kerb, upon which a cast-iron close-jointed cylinder was lowered and secured; within this, the centre foundation was built, and had stood perfectly. Other instances of raft or floating foundations, common in Lincolnshire, were adduced, shewing the simple means by which such local difficulties were overcome in England.

### THE LIGHT AND HEALTH TAX.

In the Commons, on Friday last, Lord Duncan asked Lord Morpeth, as Chief Commissioner of Woods and Forests, whether any alteration was contemplated in the mode of assessing the window-tax. He was induced, he said, to do so, by the fact that his Lordship, as one of the directors of the Metropolitan Association for Improving the Dwellings of the Industrious Classes, had sanctioned a report issued by that Association, in which it was stated, that "the directors had bestowed much time on the question of the window-tax, as bearing upon the dwellings proposed to be erected by the association, and though the tax, according to the present mode of assessment, would bear heavily upon the tenants, they confidently hoped that an alteration in the mode of rating would shortly be effected." Lord Morpeth, in reply, said, that he quite agreed with his noble friend that the subject of the window-tax was closely connected with sanitary considerations; but it was also a financial question, and he had received no intimation from the Chancellor of the Exchequer that it was his right hon. friend's intention to give up his office, and leave him (Lord Morpeth) at liberty to deal with the window duties.

A petition, as under, from 263 of the ratepayers of Reading, praying the repeal of the window-tax, was lately presented to parliament by Mr. Brantherton:—

"The petition of the undersigned inhabitants of Reading,

"Respectfully sheweth,—That the tax levied upon windows is oppressive on your petitioners, is unequal in its operation, prejudicial to health and cleanliness, prevents the improvement of house property, and lessens the means of employment for the industrious classes.

"Your petitioners, for the reasons aforesaid, beseech the House of Commons immediately to repeal the tax levied upon windows in Great Britain."

Reading, March 6, 1847.

This may serve as a precedent for other bodies anxious to petition to the same effect.

### New Books.

*Lanzi's History of Painting in Italy.* Translated by THOS. ROSCOE, Vol. I. Bohn, York-street. 1847.

Mr. Bohn has done well in including Lanzi's well-known and valuable history in his "Standard Library." It will form three volumes, and will thus be obtainable for a few shillings. "Lanzi's history," as Mr. Roscoe observes, "brings into full light the leading professors of the art, exhibits at due distance those of the second class, and only glances at mediocrity and inferiority of character inasmuch as to fill up the great pictorial canvas with its just lights and shades. The true causes of the decline and revival of the art at certain epochs are pointed out, with those that contribute to preserve the fine arts in their happiest lustre; in which, recourse to examples more than to precepts is strongly recommended. The best rules are unfolded for facilitating the study of different manners, some of which are known to bear a resemblance, though by different hands, and others are opposed to each other, although adopted by the same artist; a species of knowledge highly useful at a period when the best productions are eagerly sought after at a high rate. It is a history, in short, worthy of being placed at the side of that on the Literature of Italy by Tiraboschi, who, having touched upon the fine arts at the outset of his labours, often urged his ancient

friend and colleague to dilate upon a subject in every way so flattering to the genius of Italy; to Italy which, however rivalled by other nations in science and in literature, stands triumphant and alone in its creative mind of art."

The present volume includes the Florentine school, the Siennese school, and the Roman school, with a biographical notice of the author and his original preface.

We are glad to see announced among the volumes in progress, "Lectures on Painting by the Royal Academicians." Our artistical literature is so meagre, and withal so confined to a few readers, that we hail thankfully this certain means of further diffusing a knowledge of the lectures in question.

*Hand-book of Anatomy for Students of the Fine Arts.*—By J. A. WHARREN. Highley, 32, Fleet-street.

THIS little book was published, the compiler says, as a pocket-companion for easy reference by the student when actually engaged in drawing, and it fully bears out his intention. Although concise, it is comprehensive and very clear.

### Miscellaneous.

**NEW (INDEPENDENT) CHAPEL, AT MANCHESTER.**—The first stone of this edifice was laid last week in Cavendish-street. The plan consists of a nave and side-aisles, with transepts, and apse, or organ gallery at the east end. The nave is divided from the aisles by five lofty arches, on clustered columns, supporting a clerestory of coupled lights under one arch, with side panels in each bay. The west front consists of a principal entrance, deeply recessed, with columns, and enriched arch moulds; a lofty window over, with a continued arcade across the entire front, connecting the tower at the south-west angle with the general design. In the gable is a five-light window, and a canopied niche, with octagonal pinnacle over, separating the north aisle from the nave. The tower is in four stages, flanked with bold buttresses in four offsets, and terminating with canopies under the corbel table of the spire, which is braced. The upper stage of the tower is arcaded, and pierced for two lights. The total height of the tower and spire is 166 feet. A deeply-recessed porch, two stages in height, is formed between the buttresses of the south side of the tower; in the gable and above is an enriched three-light window under one arch. The aisles are flanked with boldly-projecting buttresses, terminating in canopied heads above the moulded and enriched parapets. The transepts are arcaded with five arches, three pierced for lights; and all the arches are dog-toothed. In the several gables are two-light windows, with side panels, and the angles are flanked with buttresses, crowned by octagonal pierced pinnacles. The east end of the chapel is lighted by a large wheel window, in ten lights, over the organ gallery. The roofs are open, carried by curved brackets, springing from enriched corbels; and an ornamental screen terminates the east end. The building is calculated to seat from 1,400 to 1,500 people. The *Illustrated News* of last week gives a view of the church, but the architect's name is not mentioned. The style is the early transition to decorated, and the whole of the work will be externally executed in stone.

**FAREWELL TO ST. MARY MAGDALENE'S AT DONCASTER.**—No one having taken advantage of the offer of the town council to allow the ruins of St. Mary's Church to be translated either to the proposed new cemetery or any where else, for preservation, at least, if not for restoration; and all obstacles to the progress of the new markets, as observed by the *Gazette*, having been cleared away; the last vestige of these venerable monuments of the past, sharing the fate of time, must inevitably go to the ground, leaving not even a wreck behind of what has been; so it only now remains to the lover of antiquity to bid a long farewell to the church of St. Mary Magdalen.

**CARLISLE THEATRE AND CHURCH.**—On the site of the theatre just destroyed a church is to be erected, while the new theatre will be built in the garden of H. R. H. the Hereditary Prince.